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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,645	05/25/2006	Sachio Iida	289831US8PCT	5346
22850 7590 03/24/2011 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER AKINYEMI, AJIBOLA A				
ART UNIT 2618		PAPER NUMBER		
NOTIFICATION DATE 03/24/2011		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/580,645

**Applicant(s)**

IIDA, SACHIO

**Examiner**

AJIBOLA AKINYEMI

**Art Unit**

2618

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art henceforth "Admission" and further in view of Richley (Patent No.: US 7412007B1).

#### With respect to claim 9:

Admission discloses a wide band amplifier comprising: an input terminal configured to receive an input voltage (fig.8, item V1), an output terminal configured to provide an amplified output voltage (fig.8, item V2), an amplification device (fig.8, item 102) connected in series between the input terminal and output terminal, an output terminal of the amplification device being directly connected to the output terminal; an LC parallel

resonant circuit (fig.8, item 103,104) connected between the output terminal (fig.8, item V2) and the ground terminal in parallel to the amplification device (fig.8, item 102) and Admission did not disclose LCR series resonant circuit connected between the output terminal and ground terminal in parallel to the amplification device and the LC parallel resonant circuit. Richley discloses this limitation (fig.3, items 15, 16, 19 include LCR series resonant circuit connected between output and ground in parallel with amplification device (fig. 3, item 12 or fig.4A, item 20) and LC parallel resonant circuit (fig.4A, item 24, 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the LCR series resonant circuit of Richley to be incorporated to Admission teaching for tuning purpose.

4. Claim 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art henceforth "Admission" and further in view of Richley (Patent No.: US 7412007B1) and Kaczynski (Pub. No.: US 2007/0111684A1).

With respect to claim 10:

The rejection of claim 9 is incorporated; Admission and Richley did not disclose an amplifier wherein a common gate circuit and a cascade circuit are combined. Kaczynski disclosed an amplifier wherein a common gate circuit and a cascade circuit are combined (parag.0034). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a common gate circuit and cascade circuit combined together in order to amplify the signal.

With respect to claim 11:

The rejection of claim 9 is incorporated; Admission and Richley did not disclose an amplifier wherein a common-source circuit, a cascade circuit and a voltage feedback circuit are combined but the examiner take official notice that combining common source circuit, a cascade circuit and a voltage feedback is common in the art and it would have been obvious to one of ordinary skill in the art at the time the invention as made to have this limitation in order to amplify the signal.

5. Claims 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art henceforth "Admission" and further in view of Richley (Patent No.: US 7412007B1), Shohara (Pub. No.: US 2005/0078743A1) and Wilhelmsson (Pub. No. US 2007/0211831A1).

With respect to claims 12:

Admission discloses an amplifier comprising an input terminal configured to receive an input voltage(fig.8, item V1), an output terminal configured to provide an amplified output voltage (fig.8, item V2), an amplification device (fig.8, item 102) connected in series between the input terminal, an output terminal of the amplification device being an output terminal of the amplifier (fig.8, item 102) and an LC parallel resonant circuit (fig.8, item 103,104) connected between the output terminal and the ground in parallel to the amplification device (fig.8, item 102). Admission did not disclose an antenna, a band pass filter and low noise amplifier, converter, automatic gain control, processor, LCR series resonant circuit connected between the output terminal and ground terminal

and down-converter being directly coupled to the amplification device. Richley discloses LCR series resonant circuit (fig.3, 15, 16, 19 and fig.4A, items 22, 23, 26) connected between the output terminal and ground and the LC parallel resonant circuit (fig. 3, item 17, 18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation of Richley incorporated to Admission for tuning purpose. Shohara disclosed a wireless communication apparatus comprising a low noise amplifier configured to amplify a voltage of a received signal (parag. 0034), a down-converter (fig.1, item 14) configured to down-convert the voltage-amplified received signal by frequency conversion, an automatic gain controller (fig.1, item 28), an analog-digital converter (fig.1, item 18), and a signal processing circuit configured to perform digital signal processing of received data (fig.1, item 50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have all this limitation in order to filter received signal and downconvert the signal for further processing. Wilhelmsson discloses down-converter being directly coupled to the amplification device (fig.4, item 403 coupled to item 402). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the limitation of Wilhelmsson into the limitation of Admission in view of Richley and Shohara in order to provide an optimal sampling instant based on estimation of Inter Symbol Interference.

With respect to claim 13:

Admission discloses an amplifier comprising: an input terminal configured to receive an input voltage (fig.8, item V1), an output terminal configured to provide an amplified output voltage (fig.8, item V2), an amplification device (fig.8, item 102) connected in

series between an input terminal and output terminal; an LC parallel resonant circuit (fig.8, item 103,104) connected between the output terminal and a ground (fig.8) in parallel to the amplification device (fig.8, item 102). Admission did not disclose an antenna, a band pass filter and low noise amplifier, converter, automatic gain control, processor and LCR series resonant circuit connected between the output terminal and the ground terminal and in parallel to the amplification device; power amplifier and down-converter being directly coupled to the amplification device. Richley discloses LCR series resonant circuit (fig.3, 15, 16, 19 and fig.4A, 22, 23, 26) connected between the output terminal and the ground terminal and the LC parallel resonant circuit (fig. 3, item 17, 18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation of Richley incorporated to Admission for tuning purpose. Shohara disclosed a wireless communication apparatus comprising a low noise amplifier configured to amplify a voltage of a received signal (parag. 0034), a down-converter (fig.1, item 14) configured to down-convert the voltage-amplified received signal by frequency conversion, an automatic gain controller (fig.1, item 28), an analog-digital converter (fig.1, item 18), digital- analog converter (fig.1, item 44) which converts transmit data to an analog signal, an up-converter (fig.1, item 48) configured to up- convert the analog transmit signal by frequency conversion, a power amplifier (parag.0034) configured to amplify power of the up-converted transmit signal, and a signal processing circuit (fig.1, item 50) configured to perform digital signal processing of transmit/receive data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have these limitations in order to filter received

signal and downconvert the signal for further processing. Wilhelmsson discloses down-converter being directly coupled to the amplification device (fig.4, item 403 coupled to item 402). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the limitation of Wilhelmsson into the limitation of Admission in view of Richley and Shohara in order to provide an optimal sampling instant based on estimation of Inter Symbol Interference

6. Claim 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art henceforth "Admission" and further in view of Modafferi (Patent No.: US 4771466).

With respect to claim 14:

Admission discloses an amplifier comprising an input terminal configured to receive an input voltage (fig.8, item V1), an output terminal configured to provide an amplified output voltage (fig.8, item V2); an amplification device (fig.8, item 102) connected in series between the input terminal and the output terminal; an analog band pass filter connected in parallel to the output terminal of the amplification device (fig.8) and a load directly coupled to the amplification device (fig. 8). Admission also disclose output of the amplification device (fig.8, item 102) being directly connected to the output terminal (fig.8 output terminal 108 is connected to the amplification device 102) Admission did not explicitly disclose s-plane in which the plurality of pole is provided and zero are provided between the poles. Modafferi discloses a band pass filter with s-plane in which the plurality of pole is provided and zero are provided between the poles (col.5, lines 50-



57 and fig.4, 5, 6, 12, 13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the limitation of Modafferi into the limitation of Admission in order to eliminate distortion.

With respect to claim 15, 16:

Admission discloses an amplifier wherein the band pass filter does not have a capacitor and inductor are not provided in series with an output terminal of the amplifier (fig.8 shows capacitor and inductor in parallel with the output).

With respect to claim 17, 18:

The rejection of claim 14 is incorporated; Admission and Modafferi do not disclose an amplifier wherein common gate and cascade circuit are combined and a common-source circuit, a cascade circuit and a voltage feedback circuit are combined but the examiner take official notice that combining common source circuit, a cascade circuit and a voltage feedback is common in the art and it would have been obvious to one of ordinary skill in the art at the time the invention as made to have this limitation in order to amplify the signal.

7. Claims 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richley (Patent No.: US 7412007B1) and further in view of Shohara (Pub. No.: US 2005/0078743A1), Wilhelmsson (Pub. No. US 2007/0211831A1) and Modafferi (Patent No.: US 4771466).

With respect to claims 19, 20:

Richley discloses an amplifier (fig.3, item 12) comprising an input terminal (fig.1, item 66) configured to receive an input voltage, an output terminal configured to provide an amplified output voltage (fig.1, output of item 62), an amplification device (fig.1, item 62) connected in series between the input terminal (fig.1, item 66), an output terminal of the amplification device being an output terminal of the amplifier (fig.1, item 62) and an LC parallel resonant circuit (fig.1,  $L_d$ ,  $C_d$ ) connected between the output terminal and the ground in parallel to the amplification device (fig.1, item 62) and LCR series resonant circuit (fig.1,  $L_s$ ,  $C_s$ ,  $R_s$ ) connected between the output terminal and ground terminal. Richley did not explicitly disclose an antenna, a band pass filter and low noise amplifier, converter, automatic gain control, processor, down-converter being directly coupled to the amplification device and s-plane in which the plurality of pole is provided and zero are provided between the poles. Shohara disclosed a wireless communication apparatus comprising a low noise amplifier configured to amplify a voltage of a received signal (parag. 0034), a down-converter (fig.1, item 14) configured to down-convert the voltage-amplified received signal by frequency conversion, an automatic gain controller (fig.1, item 28), an analog-digital converter (fig.1, item 18), and a signal processing circuit configured to perform digital signal processing of received /transmit data (fig.1, item 50), power amplifier configured to amplify a power of the up-converted transmit signal (parag.0034). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have all this limitation in order to filter received signal and downconvert the signal for further processing. Wilhelmsson discloses down-converter being directly coupled to the amplification device (fig.4, item 403 coupled to

item 402). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have down-converter directly coupled to amplification device as a design choice. Modafferi discloses a band pass filter with s-plane in which the plurality of pole is provided and zero are provided between the poles (col.5, lines 50-57 and fig.4, 5, 6, 12, 13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the limitation of Modafferi into the limitation of Admission in view of Richley, Shohara and Wilhelmsson in order to eliminate distortion.

#### ***Response to Arguments***

8. Applicant's arguments filed 01/14/2011 have been fully considered but they are not persuasive. Regarding claims 9 and 14, applicant argued that the cited reference does not disclose direct connection between the output of amplification device and output of the wide band amplifier without any intervening component. Applicant further argued that Richley does not describe that the output of the transistor 12 is directly connected to the load resistor 19 so that the output voltage experienced by the load resistor 19 is the same as the output voltage of the transistor 12. Examiner respectfully disagrees with this statement because claims 9 and 14 disclose an amplification device connected in series between the input terminal and the output terminal, an output of the amplification device being directly connected to the output terminal; Examiner acknowledges in the last office action that Admitted prior art discloses this limitation based on the figure provided (fig.8) which discloses input and output of amplification device (fig.8). An amplification device (fig.8, item 102) connected in series between the

input terminal and output terminal, an output terminal of the amplification device being directly connected to the output terminal. **Richley further discloses in fig.2 that items 8, 9, 5 are LCR series resonant circuit connected between output of the current source 1 and ground; item 6, 7 in parallel with the current source (fig. 2, item 1). Moreover, 6-7 are in parallel with elements 8-9 and 5. Richley further stated in col.6, lines 3-4 that the current source 1 in fig. 2 can be replaced by a transistor as in fig.3, item 12 so that LCR 15, 16, 19 are connected between the output of transistor 12 and the ground.** Examiner believe that the combination of the Admitted prior art with Richley reference will make a good modification base on Richley summary of invention which stated that "a wideband power transmitter having high efficiency, i.e., greater than 50% power conversion, is achieved through the use of a combination of nonlinear switching and, preferably, a singly terminated filter network that effectively provides pulse amplification".

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AJIBOLA AKINYEMI whose telephone number is (571)270-1846. The examiner can normally be reached on monday- friday (8.30-5pm) Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DUC NGUYEN can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. A./  
Examiner, Art Unit 2618

/DUC NGUYEN/  
Supervisory Patent Examiner, Art Unit 2618